

1. A point-of-purchase advertising system comprising:

at least one programmable, display assembly adapted to be securely connected to a self-service product display shelf such that an illuminable advertising portion of the display assembly extends into a shopping aisle adjacent the display shelf for visual observation by shoppers; and

a controller, remotely disposed relative to the assembly;

said assembly and controller, in combination, comprising a data link to thereby provide variable point-of-purchase illuminated advertising.

2. A system according to Claim 1 wherein the display assembly further comprises a low-

power computer comprising digital memory to store advertising displays, communications and control programs and data acquired by the computer; at least one graphics display; a power supply; and a shelf-mounting system whereby the display assembly is securely connected to the shelf, the power supply being carried by the display assembly connected to the shelf.

3. A system according to Claim 2 wherein said power supply comprises a low voltage

battery, the weight of which is not borne by the portion of the display assembly which extends into the aisle.

4. A system according to Claim 3 wherein the battery is carried by a holder disposed

under the shelf, which holder is connected to the shelf.



5. A system according to Claim 2 wherein said display assembly further comprises a video camera whereby images from the aisle are captured and stored in the display assembly.

6. A system according to Claim 2 wherein said display assembly further comprises a video camera whereby images from the aisle are captured and transmitted to the controller.

7. A system according to Claim 2 wherein said display assembly further comprises a video camera whereby images from the aisle are presented in play back mode on the graphics display.

8. A system according to Claim 2 wherein said display assembly further comprises a switchable sleep circuit which, when activated, substantially cuts off power to the display assembly and when deactivated resumes power to the display assembly.

9. A system according to Claim 8 wherein said display assembly further comprises a motion detector which is disposed to sense movement along the aisle and which deactivates the sleep circuit when motion is detected along the aisle.

10. A system according to Claim 8 wherein said display assembly comprises a pair of separately powered and controlled graphics illuminated displays which are visually observable in opposing directions along the aisle.



11. A system according to Claim 10 wherein the switchable sleep circuit, when activated, selectively cuts off power to both graphics display assemblies.

12. A system according to Claim 11 wherein said display assembly further comprises a pair of motion detectors which are generally in opposed alignment such that each detector is disposed to sense movement along the aisle in a direction opposite to the motion detection field of the other motion detector, each such detector selectively deactivating the sleep circuit for an associated graphics display when motion is detected along the aisle.

13. A system according to Claim 11 wherein said display assembly further comprises a timer which times out to activate the previously deactivated sleep circuit.

14. A system according to Claim 2 wherein said display assembly further comprises a product identification system whereby without human intervention a real-time inventory is taken of shelf resident products marked by remotely readable identifiers, such identifiers comprising at least one identifier selected from the group consisting of tags, transponders and other markers which are responsive to interrogating signals from the identification system.

15. A system according to Claim 2 wherein said display assembly further comprises a modem and associated electronics which provide remote wireless, programmed, automatic communications with said controller.



16. A system according to Claim 2 wherein said graphics display comprises a liquid crystal screen.

17. A system according to Claim 2 wherein said display assembly further comprises two juxtaposed graphic displays oriented so that video images are seen from opposite directions along the aisle.

18. A system according to Claim 1 wherein said at least one display assembly comprises a plurality of display assemblies.

19. A system according to Claim 1 wherein the portion of display adapted to project into the aisle does so perpendicular to the aisle and is deflectable when struck by a person or object.

20. A remotely programmable, computer-controlled display assembly securely and transversely connected to a self-service product display shelf such that at least a portion of the display assembly projects for visual observation into an aisle adjacent to the display shelf, said display assembly comprising:

a digital processor comprising sufficient digital memory to store advertising displays, communications and control programs and data acquired from a remote source; at least one graphics display; a power supply; and a shelf-mounting system whereby the display assembly is securely connected to the shelf, the power supply comprising weight which is transferred directly to the shelf and not to the portion of the display projecting into the aisle.



21. A display assembly according to Claim 20 wherein said power supply comprises at least one low voltage battery.

22. A display assembly according to Claim 20 wherein said shelf-mounting display assembly comprises a receptacle for a battery supported directly by the shelf.

23. A display assembly according to Claim 20 wherein said display assembly further comprises a video camera and microphone whereby images and sounds from the aisle are captured and stored in the display assembly.

24. A display assembly according to Claim 20 further comprising a remotely disposed computer controller and wherein said display assembly further comprises a video camera whereby images from the aisle are captured and transmitted to the controller.

25. A display assembly according to Claim 20 wherein said display assembly further comprises a video camera whereby images from the aisle are presented in real time on the graphics display.

26. A display assembly according to Claim 20 wherein said display assembly further comprises a switchable sleep circuit which, when activated, cuts off substantially all power to the display assembly and when deactivated resumes power to the display.



27. A display assembly according to Claim 26 wherein said display assembly further comprises a motion detector which is disposed to sense movement along the aisle and which deactivates the sleep circuit when motion is detected along the aisle.

28. A display assembly according to Claim 20 wherein said display assembly comprises a pair of separately powered and controlled graphics displays which present illuminated visual advertising in both directions along the aisle.

29. A display assembly according to Claim 28 wherein said assembly comprises a switchable sleep circuit, which, when activated, selectively cuts off power to both graphics display assemblies.

30. A display assembly according to Claim 29 wherein said display assembly further comprises a pair of motion detectors which are in generally opposed alignment such that one detector is disposed to sense movement along the aisle in a direction opposite the other motion detector, each such detector selectively deactivating the sleep circuit for an associated graphics display when motion is detected along the aisle.

31. A display assembly according to Claim 20 wherein said display assembly further comprises a timer which times out to activate the sleep circuit.



32. A display assembly according to Claim 20 wherein said display assembly further comprises a product identification system whereby without human intervention a real-time inventory is taken of shelf resident products marked by remotely accessible identifiers, such identifiers comprising at least one identifier selected from the group consisting of tags, transponders and other markers which are responsive to interrogating signals from the identification system.

33. A display assembly according to Claim 20 further comprising a controller remote from the display assembly and wherein said display assembly further comprises a modem and associated electronics which provide wireless communications with the remotely disposed controller.

34. A display assembly according to Claim 20 wherein said graphics display comprises a liquid crystal screen.

35. A display assembly according to Claim 20 wherein said display assembly further comprises two juxtaposed graphic displays oriented so that video images are seen from either direction along the aisle.

36. A method for providing automated, remotely controlled and modifiable advertising at a product-carrying shelf along an aisle of a retail store comprising the following acts:

providing a point-of-purchase advertising system comprising:



at least one programmable display assembly securely and transversely connected to the shelf such that at least a portion of the display assembly extends for visual observation of advertising into an aisle adjacent to the shelf; and

a controller, remotely disposed relative to the display assembly, said display assembly and controller, in combination, comprising a wireless data link to provide illuminated modifiable point-of-purchase advertising in close proximity to the product;

providing as a part of said display assembly, a digital processor having sufficient digital memory to store advertising displays, communications and control programs; at least one graphics display; a power supply; and a shelf-mounting system whereby the display assembly is securely affixed to the shelf;

transmitting a digital message from the controller to the display assembly, the digital message comprising at least one displayable image;

receiving the digital message at the display assembly and displaying the image on the at least one graphics display.

37. A method according to Claim 36 comprising the further act of positioning the power in connected relation to the shelf such that weight of the power supply is borne by the shelf and not borne by the portion of the display assembly which extends into the aisle.

38. A method according to Claim 36 comprising the further act of affixing a battery to the shelf such that the weight of the battery is not borne by the portion of the display assembly which extends into the aisle.



39. A method according to Claim 36 comprising the further act of disconnecting the display assembly from one shelf position and connecting the display assembly to a second shelf position.

40. A method according to Claim 36 comprising the further act of providing at least one video camera at the display assembly disposed for viewing along the aisle.

41. A method according to Claim 40 comprising the further act of collecting images along the aisle and reproducing the images on the at least one graphics display at the display assembly in real time.

42. A method according to Claim 41 comprising the further act of transmitting the images taken by the video camera to the controller.

43. A method according to Claim 36 comprising the further act of providing a switchable sleep circuit which, when activated, substantially cuts off power to the display assembly and when deactivated resumes power to the display.

44. A method according to Claim 43 comprising the further act of providing a motion detector which is disposed to sense movement along the aisle and which deactivates the sleep circuit when motion is detected along the aisle.



45. A method according to Claim 44 comprising the further act of providing a timer, as part of the display assembly, the timing out of which activates the sleep circuit.

46. A method according to Claim 45 comprising the further act of activating the sleep circuit when the timer times out and no motion is detected by the motion detector.

47. A method according to Claim 45 further comprising the act of providing a pair of separately powered and controlled graphics displays which display in opposing directions along the aisle, one associated motion detector for each graphics display and a sleep circuit which selectively removes power from each graphics display dependent upon motion in the aisle detected by each motion detector.

48. A method according to Claim 43 comprising a step of selectively applying power to that graphics display associated with detected motion by at least one motion detector.

49. A method according to Claim 36 further comprising the act of providing a product identification system whereby a real-time inventory is taken of shelf resident products marked by remotely accessible identifiers, such identifiers comprising at least one identifier selected from the group consisting of tags, transponders and other markers which are responsive to interrogating signals from the identification system.



50. A method according to Claim 49 further comprising the act of taking an inventory of all shelf-carried products at a particular point in time and storing results of the inventory in processor memory.

51. A method according to Claim 50 comprising a step of taking a subsequent inventory shelf-carried products at a subsequent point in time to thereby determine a change in inventory.

52. A method according to Claim 50 further comprising the act of transmitting the change in shelf resident inventory to the controller.

53. A method according to Claim 36 comprising a step of providing a plurality of display assemblies.

54. A method according to Claim 53 further comprising the act of from time-to-time transmitting different advertising images from the controller to each of the display assemblies.



55. A system for providing illuminated advertising along a shopping aisle adjacent to a shelf upon which an inventory of product is placed comprising:

a controller comprising an electronic source of advertising information and a transmitter by which the advertising information is transmitted;

at least one display assembly located remote from the controller and comprising connectors by which the display assembly is secured to the shelf, the display assembly further comprising an electronic billboard upon which the transmitted advertising information is illuminated in human readable form for visual observation by a shopper, the display assembly comprising a receiver which receives the advertising information and communicates the advertising information to the billboard for illuminated display in human readable form.

56. A system according to Claim 55 wherein the transmitter and receiver are wireless communication devices.

57. A system according to Claim 55 wherein the transmitter and receiver are in hard wire communication.

58. A system according to Claim 55 wherein the billboard of the display assembly projects generally transversely into the aisle.

59. A system according to Claim 55 wherein the billboard projects generally transversely into the aisle such that the billboard is deflectable in respect to the connectors.



60. A system according to Claim 55 wherein the controller is programmable and comprises memory in which a plurality of different advertising information is stored for selective transmission to the display assembly.

61. A system according to Claim 55 wherein the display assembly comprises a transmitter and the controller comprises a receiver which is in formation communication with the transmitter of the display assembly.

62. A system according to Claim 55 further comprising at least one video camera carried by the display assembly, which video camera monitors visual events along the aisle.

63. A system according to Claim 62 wherein the video camera communications information pertaining to the monitored aisle events for visual observation on the electronic billboard.

64. A system according to Claim 55 further comprising an audio device carried by the display assembly for monitoring audio events along the aisle.

65. A system according to Claim 64 comprising memory in which information pertaining to the monitored audio events is stored for future access.



66. A system according to Claim 55 comprising at least one battery, disposed adjacent to the electronic billboard by which electrical power is provided to the electronic billboard.

67. A system according to Claim 60 wherein the at least one battery is located under the shelf.

68. A system according to Claim 55 wherein the products on the shelf each comprise a readable identifier and the display assembly comprises an inventory reader by which the identifiers are read, the system further comprising memory to which information from the inventory reader is communicated for subsequent access.

69. A method of providing advertising along a retail shopping aisle adjacent to a shelf upon which an inventory of product is placed comprising the acts of:

creating advertising information at a first site;

communicating the advertising information electronically from the first site to an electronic billboard of a display assembly mounted to the shelf at a second site remote from the first site;

displaying the advertising in human readable form on the electronic billboard in plain view of a shopper in the retail shopping aisle.

70. A method according to Claim 69 further comprising the act of storing the advertising information after the creating act and before the communicating act.



71. A method according to Claim 70 wherein the stored advertising information comprises a plurality of advertisements, at least one of which is communicated to the electronic billboard at a selected point in time.

72. A method according to Claim 69 further comprising the act of causing the electronic billboard to physically project transversely into the retail shopping aisle.

73. A method according to Claim 72 wherein the electronic billboard displays advertising to shoppers along the aisle in both directions.

74. A method according to Claim 69 wherein the communication act is accomplished using technologies selected from the group consisting of wireless communications and hard wire communications.

75. A method according to Claim 69 further comprising the act of discontinuing the displaying act of discontinuing the displaying act at times when a shopper is not in the aisle.

76. A method according to Claim 75 further comprising the act of resuming the displaying act after the discontinuing act when a shopper is in the aisle.

77. A method according to Claim 69 further comprising the act of monitoring aisle events using a video camera associated with the display assembly.



78. A method according to Claim 69 further comprising the act of monitoring the supply of the product on the shelf using a reader associated with the display assembly.

79. A method according to Claim 78 further comprising the act of storing in memory the results of the monitoring act.

80. A method according to Claim 78 further comprising the act of communicating the results of the monitoring act to first site.

81. A method according to Claim 69 further comprising the act of monitoring audio events in the aisle using an audio monitor associated with the display assembly.

82. A method of advertising a product in inventory on a retail shelf and monitoring the change in inventory, comprising the acts of:

mounting a product-advertising device fo the retail store shelf adjacent to the inventory;

displaying a form of advertising for the product at the device;

monitoring the supply of the product on the shelf using a monitoring device associated with the advertising device;

communicating the results of the monitoring act from the monitor at the device to a management retrieval location for inventory analysis and replenishment purposes.